IN THE CLAIMS

Please amend claims 1, 20 and 39 as follows:

- (CURRENTLY AMENDED) A method for terminating profile sweeps for multiple bodies in a computer-implemented solid modeling system, comprising:
 - (a) generating a planar profile of one or more curves;
 - (b) sweeping the profile along a specified path to generate a tool body; and
- (c) terminating the swept profile, when the tool body interacts with a plurality of blank bodies to a predefined extent, using a graph-based method for multi-bodied sweep terminations.
 - 2. (ORIGINAL) The method of claim 1, wherein the terminating step (c) comprises:
- (1) performing a pre-processing phase to create a cellular topology graph of the tool and blank bodies;
- (2) performing an analysis phase to extract tool and blank graphs from the cellular topology graph; and
- (3) performing a post-processing phase to integrate results from the extracted tool and blank graphs.
- 3. (ORIGINAL) The method of claim 2, wherein the pre-processing phase labels faces and edges of the tool and blank bodies.
- 4. (ORIGINAL) The method of claim 3, wherein the pre-processing phase tracks which faces came from which body.
- 5. (ORIGINAL) The method of claim 3, wherein the pre-processing phase propagates edge attributes for each face of a sheet.
- 6. (ORIGINAL) The method of claim 3, wherein the faces and edges are labeled with attributes.
- 7. (ORIGINAL) The method of claim 2, wherein the pre-processing phase constructs a blank body.

- 8. (ORIGINAL) The method of claim 2, wherein the pre-processing phase performs cellular decomposition on the tool body and blank body to create the cellular topology graph.
- 9. (ORIGINAL) The method of claim 2, wherein the analysis phase adds termination vertices to the tool graph.
- 10. (ORIGINAL) The method of claim 2, wherein the analysis phase derives bundle graphs from the tool graph that are used to determine the potential "from" and "to" terminations.
- 11. (ORIGINAL) The method of claim 2, wherein the analysis phase performs label propagation in which marking of faces as a from-face or to-face are propagated to faces adjacent to those faces originally marked as from-faces and to-faces.
- 12. (ORIGINAL) The method of claim 2, wherein the analysis phase handles a specific termination type relative to the bodies.
- 13. (ORIGINAL) The method of claim 2, wherein an output of the analysis phase is a graph whose vertices represent cells that are used to create an output body.
- 14. (ORIGINAL) The method of claim 2, wherein the post-processing phase integrates results from the analysis phase according to the Boolean operation.
- 15. (ORIGINAL) The method of claim 14, wherein the results comprise a truncated tool body computed as a union of cells of the tool body.
- 16. (ORIGINAL) The method of claim 14, wherein the results comprise a truncated tool body computed from the Boolean operation of the tool body with a target body.
- 17. (ORIGINAL) The method of claim 14, wherein the results comprise a truncated tool body computed from the Boolean operation of the tool body with the blank body created in the preprocessing step.

- 18. (ORIGINAL) The method of claim 1, wherein the tool body interacts with the blank bodies according to one or more Boolean operations selected from a group comprising a joining operation of the tool body with one or more of the blank bodies, a cutting operation of the tool body from one or more of the blank bodies, and an intersecting operation of the tool body with one or more of the blank bodies.
- 19. (ORIGINAL) The method of claim 1, wherein the predefined extent is selected from a group comprising:
- (1) Distance, wherein the tool body is generated by sweeping the profile, and the tool body extends to a predefined length;
 - (2) All, wherein the tool body extends through the blank body, but no further;
- (3) To-next, wherein the tool body extends to a first face on the blank body, wherein the first face completely cuts the tool body;
 - (4) To-face, wherein the tool body extends up to, but does not penetrate, a selected face; and
 - (5) From-to, wherein the tool body is swept between two selected faces.
- 20. (CURRENTLY AMENDED) An apparatus for terminating profile sweeps for multiple bodies, comprising:
 - (a) a computer; and
 - (b) a solid modeling system, executed by the computer, having logic for:
 - (1) generating a planar profile of one or more curves;
 - (2) sweeping the profile along a specified path to generate a tool body; and
 - (3) terminating the swept profile, when the tool body interacts with a plurality of blank bodies to a predefined extent, using a graph-based method for multi-bodied sweep terminations.
- 21. (ORIGINAL) The apparatus of claim 20, wherein the logic for terminating (3) comprises:
- (i) logic for performing a pre-processing phase to create a cellular topology graph of the tool and blank bodies;

- (ii) logic for performing an analysis phase to extract tool and blank graphs from the cellular topology graph; and
- (iii) logic for performing a post-processing phase to integrate results from the extracted tool and blank graphs.
- 22. (ORIGINAL) The apparatus of claim 21, wherein the pre-processing phase labels faces and edges of the tool and blank bodies.
- 23. (ORIGINAL) The apparatus of claim 22, wherein the pre-processing phase tracks which faces came from which body.
- 24. (ORIGINAL) The apparatus of claim 22, wherein the pre-processing phase propagates edge attributes for each face of a sheet.
- 25. (ORIGINAL) The apparatus of claim 22, wherein the faces and edges are labeled with attributes.
- 26. (ORIGINAL) The apparatus of claim 21, wherein the pre-processing phase constructs a blank body as a target body.
- 27. (ORIGINAL) The apparatus of claim 21, wherein the pre-processing phase performs cellular decomposition on the tool body and blank body to create the cellular topology graph.
- 28. (ORIGINAL) The apparatus of claim 21, wherein the analysis phase adds termination vertices to the tool graph.
- 29. (ORIGINAL) The apparatus of claim 21, wherein the analysis phase derives bundle graphs from the tool graph that are used to determine the potential "from" and "to" terminations.
- 30. (ORIGINAL) The apparatus of claim 21, wherein the analysis phase performs label propagation in which marking of faces as a from-face or to-face are propagated to faces adjacent to those faces originally marked as from-faces and to-faces.

- 31. (ORIGINAL) The apparatus of claim 21, wherein the analysis phase handles a specific termination type relative to the bodies.
- 32. (ORIGINAL) The apparatus of claim 21, wherein an output of the analysis phase is a graph whose vertices represent cells that are used to create an output body.
- 33. (ORIGINAL) The apparatus of claim 21, wherein the post-processing phase integrates results from the analysis phase according to the Boolean operation.
- 34. (ORIGINAL) The apparatus of claim 33, wherein the results comprise a truncated tool body computed as a union of cells of the tool body.
- 35. (ORIGINAL) The apparatus of claim 33, wherein the results comprise a truncated tool body computed from the Boolean operation of the tool body with a target body.
- 36. (ORIGINAL) The apparatus of claim 33, wherein the results comprise a truncated tool body computed from the Boolean operation of the tool body with the blank body created in the preprocessing step.
- 37. (ORIGINAL) The apparatus of claim 20, wherein the tool body interacts with the blank bodies according to one or more Boolean operations selected from a group comprising a joining operation of the tool body with one or more of the blank bodies, a cutting operation of the tool body from one or more of the blank bodies, and an intersecting operation of the tool body with one or more of the blank bodies.
- 38. (ORIGINAL) The apparatus of claim 20, wherein the predefined extent is selected from a group comprising:
- (1) Distance, wherein the tool body is generated by sweeping the profile, and the tool body extends to a predefined length;
 - (2) All, wherein the tool body extends through the blank body, but no further;

- (3) To-next, wherein the tool body extends to a first face on the blank body, wherein the first face completely cuts the tool body;
 - (4) To-face, wherein the tool body extends up to, but does not penetrate, a selected face; and
 - (5) From-to, wherein the tool body is swept between two selected faces.
- 39. (CURRENTLY AMENDED) An article of manufacture embodying logic for terminating profile sweeps for multiple bodies in a computer-implemented solid modeling system, the logic comprising:
 - (a) generating a planar profile of one or more curves;
 - (b) sweeping the profile along a specified path to generate a tool body; and
- (c) terminating the swept profile, when the tool body interacts with a plurality of blank bodies to a predefined extent, using a graph-based method for multi-bodied sweep terminations.
- 40. (ORIGINAL) The article of manufacture of claim 39, wherein the terminating step (c) comprises:
- (1) performing a pre-processing phase to create a cellular topology graph of the tool and blank bodies;
- (2) performing an analysis phase to extract tool and blank graphs from the cellular topology graph; and
- (3) performing a post-processing phase to integrate results from the extracted tool and blank graphs.
- 41. (ORIGINAL) The article of manufacture of claim 40, wherein the pre-processing phase labels faces and edges of the tool and blank bodies.
- 42. (ORIGINAL) The article of manufacture of claim 41, wherein the pre-processing phase tracks which faces came from which body.
- 43. (ORIGINAL) The article of manufacture of claim 41, wherein the pre-processing phase propagates edge attributes for each face of a sheet.

- 44. (ORIGINAL) The article of manufacture of claim 41, wherein the faces and edges are labeled with attributes.
- 45. (ORIGINAL) The article of manufacture of claim 40, wherein the pre-processing phase constructs a blank body as a target body.
- 46. (ORIGINAL) The article of manufacture of claim 40, wherein the pre-processing phase performs cellular decomposition on the tool body and blank body to create the cellular topology graph.
- 47. (ORIGINAL) The article of manufacture of claim 40, wherein the analysis phase adds termination vertices to the tool graph.
- 48. (ORIGINAL) The article of manufacture of claim 40, wherein the analysis phase derives bundle graphs from the tool graph that are used to determine the potential "from" and "to" terminations.
- 49. (ORIGINAL) The article of manufacture of claim 40, wherein the analysis phase performs label propagation in which marking of faces as a from-face or to-face are propagated to faces adjacent to those faces originally marked as from-faces and to-faces.
- 50. (ORIGINAL) The article of manufacture of claim 40, wherein the analysis phase handles a specific termination type relative to the bodies.
- 51. (ORIGINAL) The article of manufacture of claim 40, wherein an output of the analysis phase is a graph whose vertices represent cells that are used to create an output body.
- 52. (ORIGINAL) The article of manufacture of claim 40, wherein the post-processing phase integrates results from the analysis phase according to the Boolean operation.
- 53. (ORIGINAL) The article of manufacture of claim 52, wherein the results comprise a truncated tool body computed as a union of cells of the tool body.

- 54. (ORIGINAL) The article of manufacture of claim 52, wherein the results comprise a truncated tool body computed from the Boolean operation of the tool body with a target body.
- 55. (ORIGINAL) The article of manufacture of claim 52, wherein the results comprise a truncated tool body computed from the Boolean operation of the tool body with the blank body created in the pre-processing step.
- 56. (ORIGINAL) The article of manufacture of claim 39, wherein the tool body interacts with the blank bodies according to one or more Boolean operations selected from a group comprising a joining operation of the tool body with one or more of the blank bodies, a cutting operation of the tool body from one or more of the blank bodies, and an intersecting operation of the tool body with one or more of the blank bodies.
- 57. (ORIGINAL) The article of manufacture of claim 39, wherein the predefined extent is selected from a group comprising:
- (1) Distance, wherein the tool body is generated by sweeping the profile, and the tool body extends to a predefined length;
 - (2) All, wherein the tool body extends through the blank body, but no further;
- (3) To-next, wherein the tool body extends to a first face on the blank body, wherein the first face completely cuts the tool body;
 - (4) To-face, wherein the tool body extends up to, but does not penetrate, a selected face; and
 - (5) From-to, wherein the tool body is swept between two selected faces.